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Attorney for Appellant

PATENT
Docket No. RPS920020184US1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Martin J. Crippen et al.	)
Serial No.:	10/717,782	)
Filed:	November 20, 2003	) Group Art Unit: 3749
For:	**AUTOMATIC RECIRCULATION AIRFLOW DAMPER**	)
Examiner:	Derek S. Boles	)

APPEAL BRIEF

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Examiner:

The Appellants filed a timely Notice of Appeal on May 4, 2005, which was filed in response to the Final Office Action mailed January 10, 2005 and the Advisory Action mailed April 26, 2005. Appellant appeals the rejection of pending Claims 1-20.

This Appeal Brief is being filed under the provisions of 37 C.F.R. § 41.37. The filing fee set forth in 37 C.F.R. § 41.20(b)(2) of $500.00 is submitted herewith. The Commissioner is hereby authorized to charge payment of any additional fees associated with this communication, or to credit any overpayment, to Deposit Account No. 50-0563.

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1. REAL PARTY IN INTEREST

The real party in interest is the assignee, International Business Machines Corporation, Armonk, New York.

2. RELATED APPEALS AND INTERFERENCES

There are no related appeals, interferences, or judicial proceedings.

3. STATUS OF CLAIMS

The Final Office Action rejected Claims 1-20. Claims 1, 2, 7, 10-12, 14, 16, and 20 stand rejected under 35 U.S.C. § 102(b) as being anticipated by as being anticipated by IBM Technical Disclosure Bulletin (NN950835) (hereinafter "IBM TDB"). Claim 3 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over IBM TDB in view of U.S. Patent No. 5,963,538 to Fujimura et al. (hereinafter "Fujimura"). Claims 4, 5, and 15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over IBM TDB in view of U.S. Patent No. 5,646,823 to Amori et al. (hereinafter "Amori"). Claims 8, 9, 17, and 18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over IBM TDB.

According to the Advisory Action mailed April 26, 2005, the claims remain rejected as set forth in the final rejection. The Advisory Action found Appellants' arguments unpersuasive. Appellant appeals the rejection of Claims 1-20.

4. STATUS OF AMENDMENTS

No amendments have been submitted subsequent to the Final Office Action mailed January 10, 2005.

5. SUMMARY OF CLAIMED SUBJECT MATTER

The present invention involves airflow maintenance for cooling electronic equipment. See specification paragraph 1. In particular, the present invention involves an apparatus and system for automatically maintaining air flow over electronic components while one or more of a group of air moving devices is absent. See specification paragraph 8. Advantageously, the apparatus and system maintain proper air circulation in electronic equipment when an air moving device is removed. See specification paragraph 23.

Embodiments of the present invention include apparatuses, a system, and a method for automatic airflow damping. See e.g. Claims 1, 14, 16, and 20. The apparatus of Claim 1 includes an enclosure 160 having an orifice 115, an orifice cover 120, and a cover actuator 145. See Figure 1, specification paragraph 20. The orifice actuator 145 moves the orifice cover 120 to a closed position covering the orifice 115 when an air moving device 140 is removed from the enclosure 160. See specification paragraph 22. The orifice actuator 145 moves the orifice cover 120 to the closed position whenever the air moving device 140 is removed. See specification paragraph 23.

A torque provided by the orifice actuator 145 moves the orifice cover 120 to the closed position regardless of the volume or direction of air flow in the enclosure 120. See specification paragraph 25. In Figure 1, the torque of the orifice actuator 145 is sufficient to move the orifice cover 120 to the closed position against the direction of air flow 110. See specification paragraph 22. In Figure 2, the torque of the orifice actuator 145 is sufficient to move the orifice cover 120 to the closed position against the pull of gravity on the orifice cover 120. See specification paragraph 22.

In addition, the orifice cover 120 may seal to the enclosure 160 using a seal, which may be formed of an elastomeric material, that the orifice actuator 145 moves into communication with the enclosure 160. See specification paragraph 9. Thus, one embodiment of the present invention seals the orifice 115 even if there is no power to the air moving devices 140 or if the orifice 115 is used as an intake orifice to draw air into the enclosure 160 (compared to an exhaust vent).

A system 100 of Claim 20 includes the enclosure 160 having an orifice 115, orifice cover 120, and cover actuator 145 of the apparatus. See Figure 1. In addition, the system 100 includes a plurality of electronic components housed within the enclosure 160. The electronic components are coupled to heat transfer components 130 on a printed circuit board 150. See Figure 1. Automatic operation of the orifice actuator 145 to move the orifice cover 120 to a closed position maintains desired airflow over the heat transfer components 130. See paragraph 23.

The method of Claim 16 includes passing air through the orifice 115 to cool electronic components in the enclosure 160, moving the orifice cover 120 from an open position to a closed position in response to removal of an air flow moving device 140 associated with the orifice 115, and sealing between the enclosure 160 and the orifice cover 120 to block airflow. See Figures 1, 2, and 4, specification paragraph 11. Sealing may be performed using an elastomeric material. See specification paragraph 11. These steps may be performed in certain embodiments using the modules and components described above in relation to the apparatus and system.

Additionally, an embodiment of the present invention includes an apparatus for automatic airflow damping claimed in means plus function format under 35 U.S.C. § 112, sixth paragraph. Examples of the structure, material, or acts corresponding to the means recited in Claim 14 are referenced below. The apparatus of Claim 14 includes means for passing air through an orifice 115 and means for moving an orifice cover 120 from an open position to a closed position in response to removal of an air moving device 140. See Claim 14. The air moving device 140 is one example of the for passing air through an orifice 115. See specification paragraph 25. The cover actuator 145 is one example of means for moving an orifice cover 120 from an open position to a closed position in response to removal of an air moving device 140. See specification paragraph 27, Figures, 1, 2, and 4.

The claimed invention provides an apparatus, system, and method for automatic airflow damping. See Claims 1, 14, 16, and 20. The cover actuator 145 exerts sufficient torque on the orifice cover 120 to counter act affects of airflow or gravity that may act on the orifice cover 120. See specification paragraph 22.

6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

I. Whether the Examiner failed to establish a *prima facie* case of anticipation under 35 U.S.C. § 102(b) for Claims 1, 2, 7, 10-12, 14, 16, and 20 where the limitations of the claims are not taught or suggested within IBM TDB.

II. Whether the Examiner failed to establish a *prima facie* case of obviousness under 35 U.S.C. § 103(a) for Claims 3, 4, 5, 8, 9, 15, 17 and 18 where the limitations of the claims are not taught or suggested within the combination of IBM TDB, Fujimura, and Amori.

7. ARGUMENT

I. The Examiner failed to establish a *prima facie* case of anticipation under 35 U.S.C. § 102(b) because IBM TDB does not teach every element of Claims 1, 2, 7, 10-12, 14, 16, and 20.

Claims 1, 2, 7, 10-12, 14, 16, and 20

A. Independent Claims 1, 14, 16, and 20

Appellant respectfully submits that independent Claim 1 is representative of the novel subject matter of Claims 14, 16, and 20. Appellant also submits that Claim 1 is patentable over IBM TDB because IBM TDB fails to teach each element of Claim 1. Claim 1 states:

> An apparatus for automatic airflow damping, the apparatus comprising:
> an enclosure comprising an orifice configured to pass air;
> an orifice cover having an open position configured to permit airflow through the orifice and a closed position configured to block airflow through the orifice; and
> **a cover actuator configured to move the orifice cover from the open position to the closed position** in response to removal of an air moving device.

(emphasis added).

B. The Rejection under 35 U.S.C. § 102(b) in view of IBM TDB

The Advisory Action mailed April 26, 2005 maintains the final rejection under 35 U.S.C. § 102(b) as set forth in the Final Office Action mailed January 10, 2005. The Advisory Action states no further reasoning in support of the final rejection. The Final Office Action states:

> To support the rejection of Claim 1, the Office Action states the following:
>
> . . . applicant is directed to paragraph 5 of the IBM TDB where it states *By the addition of a flap as described below, which will close automatically and shut off the air flow when the fan is removed.* This reference's **actuator accomplishes the same result as the applicant's actuator through a combination of a spring, gravity and airflow** which when broadly read meets the limitations of applicant's actuator, which is not immune to natural phenomenon such as gravity. Office Action, 1/10/2005, pp. 3-4 (italics in original, bold added).

C. Withdrawal of the Rejection under 35 U.S.C. § 102(b) in view of IBM TDB

Appellant respectfully disagrees with the Office Action's characterization of the teachings of IBM TDB. As described immediately below, IBM TDB fails to teach or suggest the limitation "a cover actuator configured to move the orifice cover from the open position to the closed position" as recited in Claim 1.

Claim 1

IBM TDB discloses a flap 3 that is moved to cover an orifice 2 in an enclosure in response to gravity or air pressure. See IBM TDB, paragraph 7 and 8. Thus, the IBM TDB preferred embodiment is for the flap 3 to be positioned above the fan so that the pivot of the flap 3 is "uppermost." See IBM TDB, paragraph 8. This allows gravity to close the flap 3.

For configurations in which the pivot of the flap 3 is not "uppermost," the IBM TDB teaches an integrally molded spring 6 that may initiate closure of the flap 3, but only partially closes the flap 3 (to about 30 degrees) to allow air pressure to completely close the flap 3. See IBM TDB, paragraph 8. The purpose of the spring 6 is to move the flap 3 about the pivot in the absence of assistance from gravity. The spring 6 includes only enough torque to place the flap 3 in "the airstream which will close it [the flap 3] completely." See IBM TDB, paragraph 8. Thus, IBM TDB requires gravity or a sufficient airstream to completely close the flap 3. See IBM TDB, paragraph 7 and 8. The spring 6 by itself is not sufficient to fully close the flap 3.

The amount of torque as taught by IBM TDB is significant because IBM TDB also teaches that "the flap gives no resistance and automatically pivots out of the way while the fan assembly slides underneath it." See IBM TDB, paragraph 9. IBM TDB then explains that the spring does exert a force against the top of the fan to block the air path and prevent flap vibration. See IBM TDB, paragraph 9. Therefore, IBM TDB teaches that the torque exerted by the spring only exits once the flap 3 is moved from about ninety degrees to about zero degrees.

In contrast, Claim 1 recites that the cover actuator is "**configured to** move the orifice cover from the open position to the closed position." Claim 1 does not include any further limitations of aide to the cover actuator from a level of airflow or an orientation such that gravity can assist as taught by IBM TDB.

The Examiner correctly notes that IBM TDB teaches a combination of the spring, gravity and/or airflow to accomplish the same result as the cover actuator of Claim 1. "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). *MPEP* §2143.03. Appellant submits that the Examiner has failed to give proper weight to the term "cover actuator configured to." Notably absent from Claim 1 are any limitations reciting a reliance on gravity or airflow. This phrase of Claim 1 specifically recites that the cover actuator possess certain features that allow the cover actuator to move the cover to a closed position.

These features are supported in the specification and defined in certain embodiments as torque imposed by a spring. See specification paragraph 22. In addition, Appellant describes various other embodiments for the cover actuator that is configured to move the cover to the closed position including pistons or a motor. See specification paragraph 27.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). MPEP §2131. Appellant respectfully submits that IBM TDB fails to teach or disclose the cover actuator recited in Claim 1. IBM TDB teaches elements similar to the cover actuator, namely the spring, gravity, and airflow. But, IBM TDB also clearly teaches that these elements much work on concert to accomplish the result of a single cover actuator recited in Claim 1.

The combination of spring, gravity, and airflow fail to provide the same advantages as the cover actuator recited in Claim 1. For example, IBM TDB requires that the flap 3 be installed with the pivot uppermost. See IBM TDB paragraph 7. IBM TDB also requires airflow sufficient to close the flap 3 completely exist within the enclosure. See IBM TDB paragraph 8. In particular, this is true where the flap is not oriented above the fan, such as with a side or bottom orientation. See *Id.*

The cover actuator of Claim 1 does not require a upper most position or any airflow. Instead, the cover actuator imposes sufficient torque to close the cover without assistance from gravity or an airflow. Appellant clearly discloses that this torque is exerted through the full pivot arc of the cover. Specifically, in one embodiment, "the orifice cover 120 is forced against the inlet orifice 115 by the torque exerted on the orifice cover 120 by the cover actuator 145." See specification paragraph 28. Therefore, the combination of spring, gravity, and/or airflow taught by IBM TDB is not required by the cover actuator recited in Claim 1 to accomplish the same result. Consequently, the flap 3 and or spring 6 of IBM TDB is unable to move the flap 3 to a closed position if there is no airflow or the flap 3 is not oriented such that gravity can assist.

Furthermore, the spring 6 alone is insufficient to anticipate the cover actuator either directly or inherently. IBM TDB clearly teaches that the spring 6 only teaches sufficient torque to place the flap 3 into the airstream. See IBM TDB paragraph 8. IBM TDB teaches away from a torque exerted throughout the arc of the flap 3. Instead, IBM TDB teaches that the flap 3 gives no resistance when installing a new fan. See IBM TDB paragraph 9, specification paragraph 28. Therefore, IBM TDB fails to teach a cover actuator configured to move the orifice cover to the closed position.

The Examiner relies on the functional result of the combination to anticipate the cover actuator where the Examiner quotes "*a flap as described below, which will close automatically and shut off the air flow when the fan is removed.*" However, this functional language fails to illustrate any structural elements of IBM TDB that are configured as the cover actuator of Claim 1. Namely no elements of IBM TDB are configured to move the flap 3 to the closed position. The elements of IBM TDB rely on gravity and/or airflow.

Therefore, for the reasons stated above, IBM TDB fails to teach all of the elements recited in claim 1. Accordingly, the Office Action fails to establish a *prima facie* case of anticipation because the cited reference fails to teach every element of amended claim 1. Given that the cited reference fails to teach all of the elements recited in claim 1, Applicant respectfully

submits that independent claim 1 is patentable over the cited reference. Applicant also requests that the rejection of claim 1 under 35 U.S.C. § 102(b) be withdrawn.

Claims 14, 16, and 20

Claims 14, 16, and 20 include, respectively, means for moving an orifice cover, moving an orifice cover, and a cover actuator substantially similar to like named cover actuator of Claim 1 described above. Therefore, Appellants submit that the Claims 14, 16, and 20 are patentable for at least the same reasons as Claim 1 above.

Claims 2-13, 15, 17-19

Given that dependent Claims 2-13, 15, 17-19 depend respectively from Claims 1, 14, 16, and 20. Appellants respectfully submit that Claims 2-13, 15, 17-19 are also patentable over IBM TDB. Appellants request that the rejection of dependent Claims 1, 2, 7, 10-12, 14, 16, and 20 under 35 U.S.C. § 102(b) be withdrawn.

II. The Examiner failed to establish a *prima facie* case of obviousness under 35 U.S.C. § 103(a) because the cited references, either alone or in combination, do not teach or suggest all of the limitations of Claims 3, 4, 5, 8, 9, 15, 17 and 18.

A. Dependent Claims 3, 4, 5, 8, 9, 15, 17, and 18

Given that Claims 3, 4, 5, 8, 9, 15, 17 and 18 depend respectively, from independent Claims 1, 14, and 16, which are believed to be patentable as described above, Appellant respectfully submits that the rejection of Claims 3, 4, 5, 8, 9, 15, 17 and 18 under 35 U.S.C. § 103(a) is moot. IBM TDB fails to teach or disclose a cover actuator as described above. A *prima facie* case of obviousness requires that the prior art teach or suggest all claim limitations. MPEP §2143.03.

The Office Action relies on IBM TDB and Fujimura in rejecting Claim 3. While Fujimura may teach a torsion spring, Fujimura fails to provide the missing cover actuator. Instead, Fujimura teaches a disc apparatus that permits removal and insertion of a disc without extending the entire disc tray. See Fujimura Abstract.

The Office Action relies on IBM TDB and Amori in rejecting Claims 4, 5, and 15. While Amori may teach a sealing means, Amori fails to provide the missing cover actuator. Instead, Amori teaches a rigid enclosure for housing electronic equipment. See Amori Abstract.

Therefore, because IBM TDB fails to teach each element of the independent Claims 1, 14, 16, and 20 and the missing elements are neither taught nor suggested by Fujimura or Amori, Appellants submit that Claims 3, 4, 5, 8, 9, 15, 17 and 18 are nonobvious over IBM TDB, Fujimura, and Amori alone, or in combination. Accordingly, Appellant requests that the rejection of dependent Claims 3, 4, 5, 8, 9, 15, 17 and 18 under 35 U.S.C. § 103(a) be duly withdrawn.

SUMMARY

In view of the foregoing, each of the claims on appeal has been improperly rejected because the Examiner has not properly established a *prima facie* case of anticipation for Claims 1, 2, 7, 10-12, 14, 16, and 20 in view of IBM TDB, or a *prima facie* case of obviousness for Claims 3, 4, 5, 15, 8, 9, 17, 18 in view of IBM TDB combined with Fujimura and/or Amori. Appellant submits that the foregoing arguments establish the novelty and non-obviousness of the claims of the present application. Therefore, Appellant respectfully requests reversal of the Examiner's rejection under 35 U.S.C. § 102(b) and 35 U.S.C. § 103(a) and allowance of pending Claims 1-20. Accordingly, Appellant submits that Claims 1-20 are patentable.

Respectfully submitted,

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8. CLAIMS APPENDIX

The claims involved in the appeal are listed below.

1. An apparatus for automatic airflow damping, the apparatus comprising:

an enclosure comprising an orifice configured to pass air;

an orifice cover having an open position configured to permit airflow through the orifice and a closed position configured to block airflow through the orifice; and

a cover actuator configured to move the orifice cover from the open position to the closed position in response to removal of an air moving device.

2. The apparatus of claim 1, wherein the cover actuator is a spring.

3. The apparatus of claim 2, wherein the spring is a torsion spring.

4. The apparatus of claim 1, further comprising a seal configured to block airflow between the enclosure and the orifice cover while in the closed position.

5. The apparatus of claim 4, wherein the seal comprises a layer of elastomeric material.

6. The apparatus of claim 1, wherein the orifice cover is a plate.

7. The apparatus of claim 1, further comprising a vent configured to pass air.

8. The apparatus of claim 1, wherein the enclosure is configured for positive air pressure and the orifice cover prevents exhaust air from exiting the enclosure while the orifice cover is in the closed position.

9. The apparatus of claim 1, wherein the enclosure is configured for negative air pressure and the orifice cover prevents intake air from entering the enclosure while the orifice cover is in the closed position.

10. The apparatus of claim 1, wherein the cover is further configured with a mechanical hinge.

11. The apparatus of claim 1, wherein the air-moving device is configured to force air through the orifice.

12. The apparatus of claim 11, wherein the air moving device is a fan.

13. The apparatus of claim 11, wherein the air moving device is a blower.

14. An apparatus for automatic airflow damping, the apparatus comprising:

means for passing air through an orifice in an enclosure in order to cool electronic components in the enclosure; and

means for moving an orifice cover from an open position to a closed position in response to removal of an air moving device associated with the orifice.

15. The apparatus of claim 14, further comprising means for blocking airflow around the orifice cover while in the closed position.

16. A method for automatic airflow damping, the method comprising:

passing air through an orifice in an enclosure in order to cool electronic components in the enclosure;

moving an orifice cover from an open position to a closed position in response to removal of an air moving device associated with the orifice; and

sealing between the enclosure and the orifice cover to block airflow between the enclosure and the orifice cover while in the closed position.

17. The method of claim 16, wherein passing air through an orifice comprises blowing air into the enclosure.

18. The method of claim 16, wherein passing air through an orifice comprises exhausting air from the enclosure.

19. The method of claim 16, further comprising blocking airflow through the orifice.

20. A system utilizing automatic airflow damping, the system comprising:

a plurality of electronic components;

an enclosure configured to enclose the plurality of electronic components, the enclosure comprising an orifice configured to pass air;

an orifice cover having an open position configured to permit airflow through the orifice and a closed position configured to block airflow through the orifice; and

a cover actuator configured to move the orifice cover from the open position to the closed position in response to removal of an air moving device.

9. EVIDENCE APPENDIX

There is no material to be included in the Evidence Appendix.

10. RELATED PROCEEDINGS APPENDIX

There is no material to be included in the Related Proceedings Appendix.